

NIK-0001

CLAIMS

1. (original) An apparatus for horizontally assembling or disassembling a cryogenic pump, the apparatus comprising:

a workstand comprising a base unit including a vertically oriented sidewall and/or frame comprising a recessed portion for accommodating a motor shaft end of the cryogenic pump and means for attaching an end of a cryogenic pump to the workstand;

a roller support structure comprising a platform and a pivotable arm having one end of the arm pivotably attached to the platform and an unattached other end of the arm comprising a rotatable support; and

at least one support stand intermediate the work stand and the rolling support structure.

2. (original) The apparatus according to Claim 1, further comprising a guide rail transversely extending from the sidewall and/or frame of the workstand, wherein the at least one support stand and the roller support structure comprise casters movably engaged with the guide rail.

3. (original) The apparatus according to Claim 1, further comprising a platform extending about a length of the cryogenic pump to be assembled or disassembled, wherein the base unit is attached to an upper surface of the platform, and wherein the at least one support stand and roller transport structure are positioned on the upper surface of the platform to support the cryogenic pump as it is assembled or disassembled.

4. (original) The apparatus according to Claim 1, wherein the at least one support stand further comprises a cradle attached to the at least one support stand, wherein the cradle is adapted to receive and support circular cross sections of the cryogenic pump.

5. (original) The apparatus according to Claim 1, wherein the at least one support stand comprises means for vertically positioning the cradle.

NIK-0001

6. (original) The apparatus according to Claim 4, wherein the cradle of the at least one support stand includes a pair of side members that form a C shaped channel cross section.

7. (original) The apparatus according to Claim 4, wherein the support stand further comprises an adjustable belt releasably attached to the cradle.

8. (original) The apparatus according to Claim 1, wherein the roller support structure further comprises a stationary support surface attached to an upper surface of the platform and adapted to receive and support circular cross sections of the cryogenic pump.

9. (original) The apparatus according to Claim 8, wherein the stationary support surface is attached to a piston rod of a vertically oriented hydraulic cylinder.

10. (original) The apparatus according to Claim 8, wherein the stationary support surface comprises a cradle adapted to receive and support circular cross sections of the cryogenic pump.

11. (original) The apparatus according to Claim 10, wherein the cradle of the stationary support surface further comprises an adjustable belt releasably attached to the cradle.

12. (original) The apparatus according to Claim 1, wherein the pivotable arm comprises an L-shaped elbow.

13. (currently amended) The apparatus according to Claim 1, further comprising a mounting plate attached to the vertically oriented sidewall, wherein the mounting plate includes a recessed opening dimensioned to accommodate a motor shaft of the cryogenic pump.

14. (original) The apparatus according to Claim 13, wherein the mounting plate is rotatably attached to the vertically oriented sidewall.

15. (original) The apparatus according to Claim 1, wherein the pivotable arm of the roller support structure is connected to a hydraulic cylinder and piston assembly, wherein the cylinder is fixedly attached to the platform and the piston is attached to the pivotable arm and slidably connected to the cylinder.

NIK-0001

16. (original) The apparatus according to Claim 1, wherein the rotatable support of the pivotable arm comprises a grooved roller carried by an axle disposed between stanchions formed at the unattached end of the pivotable arm.

17. (original) The apparatus according to Claim 1, wherein the stationary support cradle includes a pair of side members that form a C shaped channel cross section.

18. (original) The apparatus according to Claim 1, further comprising a first beam vertically extending from the workstand; a second beam vertically extending from ground spaced apart from the first beam; a horizontal beam pivotably attached to the first and second beams, wherein the horizontal beam can be moved into a position parallel and coaxial to a longitudinal axis of the cryogenic pump; a trolley assembly attached to the horizontal beam and adapted to laterally move about a length of the horizontal beam; and a hoist extending from the trolley assembly and adapted for vertical movement.

19. (original) The apparatus according to Claim 1, wherein the horizontal beam pivotably attached to the first and second beams comprises a plurality of hinged members connecting the horizontal beam to the first and second beams, and a tie rod pivotably connected to each one of the first and second beams and pivotably connected to a point of attachment to the horizontal beam.

NIK-0001

20. (original) A process for horizontally assembling a cryogenic pump, comprising:

horizontally aligning and inserting an end of a motor shaft into a recess of a workstand, wherein the recess is formed in a vertically oriented sidewall and/or frame of the workstand;

maintaining alignment of the motor shaft and supporting the motor shaft in a cradle of at least one support stand longitudinally spaced from the base unit;

attaching a pump shaft to the motor shaft;

supporting and maintaining alignment of the pump shaft with a roller transport structure and/or the at least one support stand, wherein the roller transport structure comprises a platform and a pivotable arm having one end of the arm pivotably attached to the platform and an unattached other end of the arm comprising a rotatable support; and

adding additional modules or components to form the cryogenic pump, wherein each additional module or component is oriented horizontally during assembly of the cryogenic pump.

21. (original) The process according to Claim 20, wherein horizontally aligning and inserting the end of the motor shaft into the recess of the workstand comprises hoisting the motor shaft with a hoist of a beam crane, wherein the beam crane comprises a first beam vertically extending from the workstand; a second beam vertically extending from ground spaced apart from the first beam, a horizontal beam pivotably attached to the first and second beams, wherein the horizontal beam can be moved into a position parallel and coaxial to a longitudinal axis of the cryogenic pump, a trolley assembly attached to the horizontal beam and adapted to laterally move about a length of the horizontal beam, and a hoist extending from the trolley assembly and adapted for vertical movement.

22. (original) The process according to Claim 20, further comprising detaching the assembled cryogenic from the base unit, wherein each detached module or component is oriented horizontally during disassembly of the pump.

NIK-0001

23. (original) The process according to Claim 20, wherein the steps of inserting the end of the motor shaft, attaching a pump shaft to the motor shaft, and adding of the additional modules or components to form the cryogenic pump comprises hoisting the motor shaft, pump shaft, and the additional modules or components into position with a beam crane attached to the workstand.

24. (original) The process according to Claim 20, comprising disassembling the cryogenic pump by stepwise removing each module and component from the cryogenic pump in a direction horizontal to ground.

25. (original) The process according to Claim 20, wherein horizontally aligning and inserting the end of the motor shaft into the recess of the workstand comprises attaching a mounting plate to the workstand and attaching an adapter plate to the first module of the cryogenic pump, wherein the mounting plate comprises a recessed opening dimensioned for accommodating the end of the motor shaft.

26. (original) The process according to Claim 25, further comprising rotating the mounting plate during the assembly and disassembly of the cryogenic pump.

NIK-0001

27. (original) A kit for assembling a cryogenic pump comprising:

the apparatus of Claim 1; and

a beam crane comprising a first beam vertically extending from the workstand; a second beam vertically extending from ground spaced apart from the first beam; a horizontal beam pivotably attached to the first and second beams, wherein the horizontal beam can be moved into a position parallel and coaxial to a longitudinal axis of the cryogenic pump; a trolley assembly attached to the horizontal beam and adapted to laterally move about a length of the horizontal beam; and a hoist extending from the trolley assembly and adapted for vertical movement.

28. (original) The kit according to Claim 26, wherein the horizontal beam pivotably attached to the first and second beams comprises a plurality of hinged members connecting the horizontal beam to the first and second beams, and a tie rod pivotably connected to each one of the first and second beams and pivotably connected to a point of attachment to the horizontal beam.